

WHAT IS CLAIMED IS:

1. A method for tuning a transconductor,
comprising:

receiving a digital value; /

5 determining a bit value for a selected bit of the
digital value;

selecting a tuning range for a transconductor based
on the bit value; and

10 tuning the transconductor within the selected range
based on any remaining bits in the digital value.

2. The method of Claim 1, wherein selecting the
tuning range comprises selecting a resistor from a
plurality of resistors.

15

3. The method of Claim 1, wherein tuning the
transconductor comprises:

converting the remaining bits into an analog signal;
and

20 tuning the transconductor based on the analog
signal.

4. The method of Claim 1, further comprising:

selecting an additional bit of the digital value;

25 and

selecting a subrange within the range based on the
value of the additional bit.

5. The method of Claim 1, wherein:
the transconductor comprises a first transconductor
and a second transconductor;
selecting the tuning range comprises selecting a
5 gain for the first transconductor and a gain range for
the second transconductor; and
tuning the transconductor comprises:
producing an output current of the
transconductor using an output current of the first
10 transconductor and an output current of the second
transconductor; and
tuning a gain of the second transconductor
within the gain range based on the remaining bits of
the digital value.

15 6. The method of Claim 1, wherein the
transconductor is used to form a selected one of a
filter, amplifier, mixer, integrator, or charge pump.

20

7. A transconductor circuit, comprising: ✓
a digital-to-analog module operable to receive a digital value and to determine a bit value for a selected bit of the digital value;

5 a digital control module operable to select a tuning range for a transconductor based on the bit value; and

an analog control module operable to tune the transconductor within the selected range based on any remaining bits in the digital value.

10

8. The circuit of Claim 7, wherein the digital control module is further operable to select the tuning range by selecting a resistor from a plurality of resistors.

15

9. The circuit of Claim 7, wherein:

the digital-to-analog module is further operable to convert the remaining bits into an analog signal; and

20 the analog control module is further operable to tune the transconductor based on the analog signal.

10. The circuit of Claim 7, wherein:

the digital-to-analog module is further operable to select an additional bit of the digital value; and

25 the digital control module is further operable to select a subrange within the range based on the value of the additional bit.

11. The circuit of Claim 7, wherein:

the transconductor comprises a first transconductor
and a second transconductor, each transconductor
producing a respective output current, wherein an output
5 current of the transconductor is produced using the
output currents of the first and second transconductors;

the digital control module is further operable to
select the tuning range by selecting a gain for the first
transconductor and a gain range for the second
10 transconductor;

the analog control module is further operable to
tune a gain of the second transconductor within the gain
range based on the remaining bits of the digital value.

12. The circuit of Claim 7, wherein the
15 transconductor is used to form a selected one of a
filter, amplifier, mixer, integrator, or charge pump.

13. A circuit, comprising: ✓

a first transconductor;

a second transconductor coupled to the first
transconductor such that the first and second
5 transconductors are operable to produce a combined output
current from respective output currents of the first and
second transconductors;

a digital-to-analog module operable to:

receive a digital value;

10 extract one or more bits from the digital
value; and

convert the remaining bits of the digital value
into an analog signal;

a digital control module operable to:

15 receive the one or more bits as a digital
signal; and

select a gain for the first transconductor and
a gain range for the second transconductor based on
the digital signal; and

20 an analog control module operable to:

receive the analog signal; and

tune a gain of the second transconductor within
the gain range based on the analog signal.

25 14. The circuit of Claim 13, wherein the digital
control module selects a gain for the first
transconductor and a gain range for the second
transconductor at least in part based on a selected bit
of the digital signal.

30

15. The circuit of Claim 13, wherein the digital control module selects the gain of the first transconductor and the gain range of the second transconductor by selecting one of a plurality of resistors.

16. The circuit of Claim 13, wherein the circuit is used to form a selected one of a filter, amplifier, mixer, integrator, or charge pump.

17. Software embodied in a computer readable medium operable to perform the steps of: /

receiving a digital value;

determining a bit value for a selected bit of the digital value;

selecting a tuning range for a transconductor based on the bit value; and

tuning the transconductor within the selected range based on any remaining bits in the digital value.

18. The software of Claim 17, wherein selecting the tuning range comprises selecting a resistor from a plurality of resistors.

19. The software of Claim 17, wherein tuning the transconductor comprises:

converting the remaining bits into an analog signal; and

tuning the transconductor based on the analog signal.

20. The software of Claim 17, further operable to perform the steps of:

selecting an additional bit of the digital value;

and

selecting a subrange within the range based on the value of the additional bit.

21. The software of Claim 17, wherein:

the transconductor comprises a first transconductor
and a second transconductor;

5 selecting the tuning range comprises selecting a
gain for the first transconductor and a gain range for
the second transconductor; and

tuning the transconductor comprises:

10 producing an output current of the
transconductor using an output current of the first
transconductor and an output current of the second
transconductor; and

tuning a gain of the second transconductor
within the gain range based on the remaining bits of
the digital value.

15

22. The software of Claim 17, wherein the
transconductor is used to form a selected one of a
filter, amplifier, mixer, integrator, or charge pump.

23. A system, comprising: ✓
means for receiving a digital value;
means for determining a bit value for a selected bit
of the digital value;
5 means for selecting a tuning range for a
transconductor based on the bit value; and
means for tuning the transconductor within the
selected range based on any remaining bits in the digital
value.